

# 5.3 Graphing & Calculus

5.1  
increasing  
decreasing  
critical #s

concavity  
pts of inflection

5.2  
rel. max  
rel. min.

[first &  
second  
derivative  
tests]

2. \*

Continuity  
vertical asymptote

$$x = a$$

$$\left[ \lim_{x \rightarrow a} f(x) = \pm \infty \right]$$

horizontal asymptote

$$y = b$$

$$\left[ \lim_{x \rightarrow \pm \infty} f(x) = b \right]$$

$$f(x) = \begin{cases} g(x); & x \leq a \\ h(x); & x > b \end{cases}$$

+ absolute  
value

+ piecewise  
defined

## Precalculus

x-intercept  
[y = f(x<sub>0</sub>)]  
y-intercept  
[= f(0)]

Symmetry

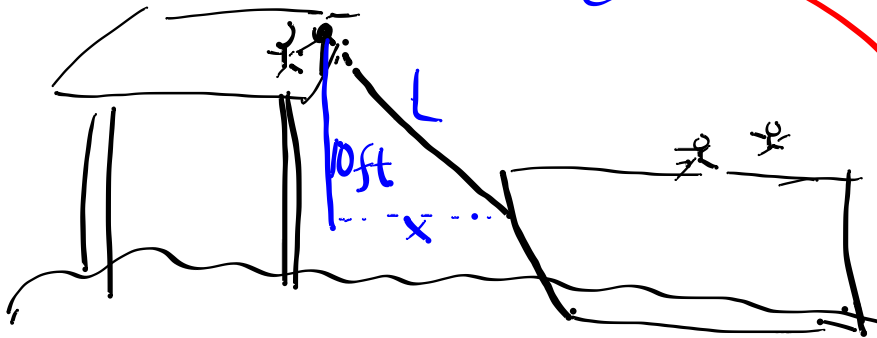
$$\left[ \begin{array}{l} \text{odd: } f(-x) = -f(x) \\ \text{even: } f(-x) = f(x) \end{array} \right]$$

also  
periodicity  
:  
:

3.7/30

When  $L = 125$  ft,  $\frac{dL}{dt} = 20$  ft/min

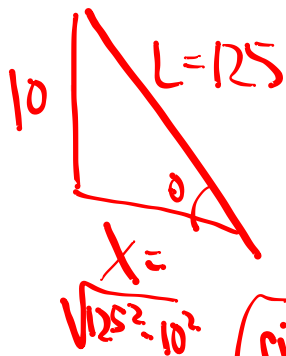
what is  $\frac{dx}{dt}$



②  $10^2 + x^2 = L^2$

③  $2x \frac{dx}{dt} = 2L \frac{dL}{dt} \Rightarrow x \frac{dx}{dt} = L \frac{dL}{dt}$

④  $x \frac{dx}{dt} = 125(-20)$



$\frac{dx}{dt} = \frac{-2500}{\sqrt{125^2 - 10^2}}$  ft/min

$\sin \theta = \frac{10}{125}$   
not rec.

